

CLAIMS

1. A mass flow measuring device for an elevator including an elevator head, the mass flow measuring device comprising:
 - 5 a rigid anchor member that is rigidly securable to a said elevator head;
 - a rigid mounting member that is rigidly securable to a sensor surface assembly;
 - a resiliently deformable connection; and
 - a load cell connected in series in a load transferring circuit, the
 - 10 resiliently deformable connection and the load cell respectively interconnecting the anchor member and mounting member as mutually unconnected elements of the load transferring circuit, whose axes of bending are non-coinciding; the mounting member having rigidly secured thereto one or more sensor fixing members extending externally of a boundary of the
 - 15 mounting member, the device being characterised in that one end of the load cell is secured to a said fixing member externally of the mounting member.
2. A device according to Claim 1 wherein the distance between the resiliently deformable connection and the location, on the sensor fixing
- 20 member, to which the load cell is secured is approximately 80mm.
3. A device according to Claim 1 including a rigid link by which the load cell is secured to the sensor fixing member, the rigid link being secured at its ends respectively to the load cell and the mounting member; at least one so
- 25 secured end of the link being threadedly received.

4. A device according to Claim 2 including a rigid link by which the load cell is secured to the sensor fixing member, the rigid link being secured at its ends respectively to the load cell and the mounting member; at least one so
5 secured end of the link being threadedly received.

5. A device according to Claim 1 including a pair of the sensor fixing members each rigidly secured to the mounting member and extending parallel to one another; the device including a mass flow sensor member secured on
10 the sensor fixing members externally of the mounting member.

6. A device according to Claim 2 including a pair of the sensor fixing members each rigidly secured to the mounting member and extending parallel to one another; the device including a mass flow sensor member secured on
15 the sensor fixing members externally of the mounting member.

7. A device according to Claim 3 including a pair of the sensor fixing members each rigidly secured to the mounting member and extending parallel to one another; the device including a mass flow sensor member secured on
20 the sensor fixing members externally of the mounting member.

8. A device according to Claim 4 including a pair of the sensor fixing members each rigidly secured to the mounting member and extending parallel to one another; the device including a mass flow sensor member secured on
25 the sensor fixing members externally of the mounting member.

9. A device according to Claim 1 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
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10. A device according to Claim 2 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
- 10 11. A device according to Claim 3 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
12. A device according to Claim 4 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
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13. A device according to Claim 5 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
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14. A device according to Claim 6 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
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15. A device according to Claim 7 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
- 5 16. A device according to Claim 8 wherein the anchor member, the mounting member and the resiliently deformable connection are integral with one another.
- 10 17. A device according to Claim 9 wherein the anchor member and the mounting member each include a rigid plate, the plates being spaced from one another by the resiliently deformable connection.
- 15 18. A device according to Claim 17 wherein the resiliently deformable connection includes a web of material interconnecting the anchor and mounting members.
19. A device accordingly to Claim 18 wherein the or each sensor fixing member perforates the web of material.
- 20 20. A conveying apparatus for a bulk flowable material, the apparatus comprising a mass flow sensor including a sensor member in a flow path of bulk material, the sensor member having rigidly secured thereto one or more sensor fixing members of a device according to any preceding claim; and the anchor member of the device being fixed relative to a part of the conveying apparatus whereby the bulk flow of material impinging on the sensor member
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causes the transfer of loads via the load transferring circuit such that the load cell generates a signal indicative of the mass flowrate of the bulk material in the conveyor.

- 5 21. A conveying apparatus according to Claim 20 when constituted as an elevator in a combine harvester, a grain silo or a hopper.